The Newsletter of
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STRESS

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HARNESSING THE STRESS OF GOLF

Hans Selye, who essentially invented the term ***Stress***, was fond of reminding me that it could be one man's meat and another's poison - the spice of life, or the kiss of death. Although that was more than 40 years ago, it's still an accurate assessment. Everyone thinks they know what stress means, but nobody really does. What is distressful for one individual may be pleasurable for another, or have little significance either way.

A vivid example of that is afforded by watching people on a roller coaster ride. Some crouch silently in the back seats, eyes shut, jaws clenched, with a white-knuckled death grip on the retaining bar. They can't wait for the ride in the torture chamber to end so that they can get their feet on solid ground and get away. But up front are the wide eyed, exhilarated thrill seekers, screaming as they relish every steep plunge, who actually race to get on the very next ride! And in between, you may find a group with an air of apparent insouciance or nonchalance that borders on boredom. So, was the roller coaster ride stressful? "Different strokes for different folks," and golf illustrates this in many ways.

The roller coaster analogy provides some very important and useful insights into what stress is really all about. It confirms that we often respond quite differently to the same event or demand, whether it be a roller coaster ride or a golf match. Because stress is such a highly personalized phenomenon, it is difficult to define or measure scientifically. However, one thing that is apparent from all research studies is that the sense or feeling of being out of control is always distressful. What distinguished the riders in the front from those in the rear of the roller coaster was the sense of control they perceived over the event. The key word here is perception. Stress does not necessarily stem from roller coaster rides or golf competition, but rather our perception of such challenges. In many instances, we have the ability to change faulty misperceptions, and learn to move from the back of the roller coaster to the front.

ONE MAN'S MEAT IS ANOTHER'S POISON

Many golfers are destroyed by "first tee jitters", and completely lose their powers of concentration and coordination, especially if there is a large gallery watching.

(Continued on page 2)

ALSO INCLUDED IN THIS ISSUE

For further information on the original source of abstracts and other reprints available on similar subjects, please send a self-addressed stamped envelope to: Reprint Division, American Institute of Stress, 124 Park Avenue, Yonkers, NY 10703.

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Paul J. Rosch, M.D., F.A.C.P.
Editor-in-Chief

Others become pumped up and energized, like race horses at the starting gate who can't wait to get going, and some contestants appear completely indifferent. It all depends on their perception of the event. It has been said that "Golf is a game of six inches - from ear to ear." One has only to watch top professionals in a close final round of some major tournament to verify how attitude, emotions, and the ability to cope with stress can affect performance.

All the great golf teachers and instructional schools now routinely incorporate stress management training and emphasize the mental side of golf in their programs. One facility, whose praises are sung by Ray Floyd, Johnny Miller, Peter Jacobsen, Mike Reid and other stars, has a five day program devoted almost entirely to this. A close friend who is one of the top LPGA tour players spent a few days there last year and was similarly impressed. While she enjoyed practicing on the course, she was not particularly excited about the prospect of routinely having to hit a few hundred balls on the practice tee several times a week. However, that's all changed, and she is often eager to get to the range to engage in what she now perceives as "rehearsal", rather than "practice".

PERCEPTION AND IMAGERY

Proper perception and mental imagery can be crucial in golf, and is an important stress reduction technique. Listen to Jack Nicklaus: "On the course, I never hit a shot without first seeing the shot completed. I imagine very clearly the trajectory of flight, the reaction of the ball upon landing, and the exact spot it ends up." Good putting is almost entirely dependent on the perception of confidence. All great putters have a mental image of the actual path of the ball, and some may actually even visualize a white line that outlines this. Most of us know whether a putt is going to be good or bad almost immediately after the putter strikes the ball. One of my Japanese colleagues, Dr. Shoji Kakigi, an authority on evoked potentials, recorded EEGs of several hundred golfers with varying handicaps who were putting from different distances. He was able to identify an evoked potential pattern that was almost always seen with successful putts, but rarely with others unless they were really close. He presented the results of another study at our International Congress on Stress which demonstrated that simply by looking at the brain wave tracings of putters as they struck the ball, he could almost immediately predict whether it would go in, simply by the presence of this characteristic EEG spike. (The next step will be to learn how to consciously develop this by utilizing EEG biofeedback).

It's not possible in an article of this length to explain all the important ways that stress can influence your game, but a consideration of the effects of Type A behavior may provide some insights. Type A individuals are usually in a hurry, and consequently eat, breathe, and speak faster than others. They often exhibit increased muscular activity with gestures and motions like clenching or pounding a fist for emphasis, tapping the feet, playing with a pencil on a table or desk in some rhythmic fashion, or with facial activities such as grimaces, gritting and grinding of the teeth, and tensing jaw muscles. They tend to be very competitive, aggressive, and anger-prone, and are characteristically in a hypervigilant state that results in unusual physical and mental alertness.

TYPE A BEHAVIOR AND GOLF

Type A's under stress tend to have a "death grip" on the club which immobilizes the wrist and prevents any proper transfer of strength from the large muscles of the torso, arms and legs. The same effect is apparent when you try to throw a baseball any distance. If you hold the ball as tight as you can, it is impossible to throw it very far since it can't be "released" and there is no "weight transfer." Sound familiar? Johnny Farrell, who won the U.S. Open over fifty years ago, claimed that the secret to golf was "soft hands and quiet wrists". In contrast, Type A's often have tell tale deep indentations in their grips under the area of their thumb and forefinger. Tension in these fingers stimulates the powerful biceps to contract. This leads to lurching back and forth, "hitting from the top", and for right handed golfers, otherwise prevents the left side from being a leading dominant force in the downswing, as it is in most players with solid swings. Type A's try to do too

many things at once, frequently watching television during dinner, while they are also reading the newspaper, and simultaneously carrying on several conversations. It's almost impossible to concentrate on more than one or two things during a two second golf swing. Thus they find it difficult to "keep your head still", "start the club back slowly and smoothly along the ground the first six inches", maintain consistent timing and tempo, or attending to anything without being easily distracted. Their persistent vigilant attitude and hyperactive responsiveness and impatience prohibits the kind of deliberate and intense concentration that the golf swing requires. Ben Hogan, who is the ultimate opposite, had such powers of concentration in his prime, that he swore he could actually see the ball flatten out on the face of his club, and would be completely oblivious to the presence of family and friends in the gallery as he walked by them, or even his opponents.

Type A behavior has been shown to be as significant a risk factor for heart attacks as cholesterol, hypertension and cigarette smoking in several large scale studies throughout the world. Some reports have shown that when Type A behavior is successfully reduced using stress inoculation and other strategies, heart attacks, as well as cholesterol, blood pressure, and cigarette smoking are significantly reduced, and anecdotally, so are golf handicaps.

Type A behavior is not necessarily harmful, or stressful, provided you are in control. However, you could be a CEO or physician in complete control of your professional and personal life, but become very frustrated when you discover that this power vanishes when you pick up a golf club. For many individuals, learning how to reduce stressful Type A traits may not only result in improved golf scores, but also a greater length and quality of life. Stress is an unavoidable consequence of the human condition, and indeed, without stress, there would be no life. However, it need not necessarily be unpleasant or harmful. The trick is in learning how to make stress work for you, so that you can become productive, instead of self-destructive, both on and off the links.

Paul J. Rosch, M.D., F.A.C.P.

Stress and Insomnia

According to a recent report from the National Commission on Sleep Disorders, one out of six, or more than forty million Americans suffer from chronic sleep disorders. An additional twenty to thirty million have intermittent episodes of insomnia, and millions more suffer from sleep deprivation because of changing shift jobs or working for long and erratic periods of time. Sleep difficulties have grown to become a major public health issue and cost American industry billions of dollars annually in terms of lost productivity. According to the Commission's Chairman, "probably the number 1 cause of temporary insomnia is environmental stress". Depressed individuals almost always complain of insomnia and sleep problems can also be a symptom of other emotional and mood disturbances.

According to current theories, each individual must obtain a certain amount of sleep each day to avoid developing into a serious sleep debt. Unfortunately, many of us are never aware of the severity of this debt because it's camouflaged by stimulation. When we finally do reach bankruptcy, it's possible to go from being wide awake to fast asleep in just a few seconds. Thus, the very first moment you sense feeling a little drowsy behind the wheel, it may be too late to do anything about it. Others also suffer, and when a truck driver falls asleep at the wheel, he takes an average of 4.2 innocent victims to the grave with him. Had the third mate on the bridge of the Exxon Valdez taken a nap the evening before the grounding, he probably would have responded to appropriate signals and turned the vessel around to avert the disaster that cost two billion dollars for immediate cleanup activities, and possibly ten billion dollars in terms of environmental damage.

There are promising new therapies for insomnia, including the Symtonic device, which has been shown to be effective in double blind polysomnography studies at major U.S. sleep centers. As demonstrated at our yearly International Congress, these effects are achieved by the induction of a weak magnetic field in the region of the hypothalamus, using a small battery powered device for only 15 or 20 minutes, three times a week. The device has been shown to be entirely safe, and unlike drug therapy, there is no tolerance, withdrawal, side effects, or habituation.

N.P.R.'s Morning Edition, 1/6/93

Stress And The Pot-Bellied Carp

Some have suggested that the reason carp grow fat bellies is that it represents a response to a chemical secreted by pike. However, based on other data in vertebrates, a Pathology Professor believes that it is a stress response, noting "I would suggest that the carp's role in the predator-prey relationship induces a level of stress which precipitates nervous and endocrine changes that are adaptive over the short term - a pot belly".

Science, January 16, 1993

Stress and Sleep in Kids

According to a recent report, on any given day, at least 70 million Americans either went to bed too late to get enough sleep, or suffered from some significant sleep related problem, such as interrupted sleep, sleep apnea, narcolepsy, or one of the other nearly 70 diagnosable sleep disorders. Although generally viewed as a problem primarily confined to adults under stress, or who have changing shift jobs or suffer jet lag, significant problems occur in youngsters. One in four children between the ages of one and five have sleep problems, most of which abate spontaneously as they get older. Sudden Infant Death Syndrome is a sleep related disorder causing 8,000 to 10,000 deaths a year, or one baby an hour. Fifteen to twenty percent of high school students admit to falling asleep during class at least once a week. According to one expert member of the National Commission on Sleep Disorders, research shows that during adolescence, sleep needs actually increase to an average of nine hours a night or more. However, school, social, and work demands rarely permit teenagers to get enough sleep. Another common problem in school age kids is sleep apnea is caused by swollen tonsils.

Sleep is an active physiologic process that is necessary to provide the mind and body a chance to rest and refresh themselves. As another member of the Commission noted, "if you need an alarm to wake up in the morning, if you feel tired or groggy, and have difficulty concentrating, you probably aren't getting enough sleep". Too many school children seem to fall into this category.

U.S.A. Today, 1/5/93

Stress Reduction Effects of Religious Faith

Prior studies of well documented cases of spontaneous remission in cancer have shown that a strong religious faith appears to be the most common characteristic of such survivors. The reasons for this are not clear, although it has been suggested that such individuals somehow have developed a strong sense of control that bolsters immune defenses, and also confers other stress reduction benefits. To investigate this further, a pilot study was performed to evaluate the impact of religious belief on the psychological distress of advanced head and neck cancer in seven elderly men. Prior reports in the literature have confirmed the benefits of a strong religious faith or belief in patients with severe burns, cardiovascular disease, and fractured hips. In this small study, three patients expressed a reliance on religious belief and four did not view religion in any form as a possible means of assistance. Using a variety of coping style and mood assessment interviews, the researchers confirmed that those who exhibited a reliance upon religion beliefs experienced much lower levels of psychological distress when compared with three of the four patients who had no belief in the value of religion. Other research studies in women with breast cancer have convincingly demonstrated that many of the rewards of a strong religious belief such as group activities and the development of a sense of control, significantly increases survival time in those with evidence of metastatic disease. It is suggested that further studies in this area need to be pursued, both in an effort to understand the mechanisms involved, and also in to attempt to improve the quality of life for cancer patients.

Psychosomatics 33:468, 1992

More on Exhaustion as a Precursor of Cardiac Death

As noted previously, excess fatigue appears to be a very prevalent precursor of heart attacks. However, like the chicken and the egg, it is not clear whether exhaustion reflects prolonged stress that leads to a heart attack, or whether having heart disease itself causes severe exhaustion. In an attempt to explore this further, a prospective 10 year study was undertaken in almost 35,000 males, aged 35 to 59. The degree of exhaustion was measured by responses to the statement, "at the end of the day, I am completely exhausted mentally and physically". Among those who were free from evidence of coronary artery disease at the onset of the study, 69 subjects subsequently died from heart attacks over the next decade. There was a highly significant relationship between the duration of exhaustion in follow up and risk for subsequent sudden death. Analysis of the data showed that the hazard ratio for exhaustion decreased from approximately 9 percent to approximately 3 percent over the first 10 to 40 months of follow up. After this period, there was no significant association between exhaustion and cardiac death.

These findings would appear to indicate that exhaustion before sudden cardiac death is not due to heart disease, but rather may contribute to the problem. If cardiac dysfunction were the cause of exhaustion, one would expect a progressively increased incidence of antecedent fatigue over the time of follow-up prior to the event, consistent with the natural progression of heart disease. This study showed just the opposite relationship, and furnishes important support for the contributory role of stress to heart attacks and sudden death. The syndrome of severe exhaustion and fatigue associated with cardiovascular events is quite likely due to emotional stress, rather than a manifestation of progressive heart disease.

Br. J. Clin. Psychol. 31:351, 1992

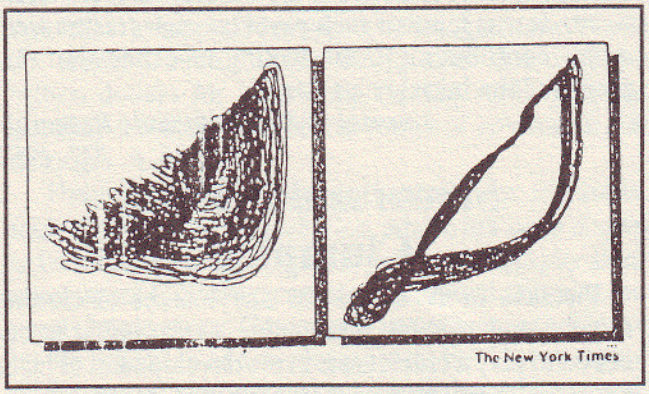
Chaos Theory and Stress

Chaos theory is a new scientific field that attempts to find order amidst apparently unorganized and unpredictable behavior. Scientists who study the mathematics of chaos have already gained new insights into weather patterns, the inner workings of the body, and the ebb and flow of wild life populations and migratory habits. At our last two Congresses, Professor James Skinner showed how chaos theory could be used to predict sudden death in high risk patients. There has been considerable interest in chaos theory in Japan where it has been utilized to make computers more adaptable, the development of washing machines, vacuum cleaners, and rice cookers that automatically adjust their operations to the condition of the substance being cleaned, steamed or cooked.

Chaos theory is based on the assumption that seemingly random behavior such as the turbulence in the river, size and frequency of waves beating on the shore, stock market changes, or the fluctuations of an animal population from year to year operates according to certain rules. All of these unpredictable activities may actually be caused by an underlying mechanism that can be identified and used to prophecy future happenings. Other approaches to studying the problem are designed to deliberately create a state of chaos, and then harness it for some practical purpose. A new Sanyo kerosene heater is based on this. Unlike conventional devices where the kerosene is burned and blows a continuous but varying stream of hot air to maintain constant temperature based on signals received from a thermostat, this device fluctuates very slightly on its own based on chaos theory mathematics, thus saving fuel while still providing comfort. This is very important since central heating is not common in Japan, and kerosene heaters are in widespread use. Other applications include analyzing oscillating signals from nuclear plant monitors to anticipate or warn of conditions under which nuclear reactions might tend to become unstable.

A Japanese computer company has now developed a device based on chaos theory to diagnose mental health by measuring capillary pulses in the finger tip. Seemingly senseless and random fluctuations in the information being processed are analyzed and interpreted based on chaos theory and displayed in meaningful diagrammatic fashion. According to the developers, "there is a clear difference between the patterns produced by a healthy, relaxed person, and those from someone who is mentally ill or under stress", as shown below.

The N.Y. Times, 1/27/93



The Effect of Stress on Treatment For Respiratory Infections

It has been clearly established that high stress levels are associated with an increased incidence of colds and upper respiratory infections. In one recent study, in which healthy volunteers were injected with various cold viruses and simultaneously subjected to stress, the number and severity of infections were directly related to increased stress levels. A recent experiment attempted to examine the effects of stress and social support on respiratory infections, and also their influence on how physicians and patients behaved during this type of illness. More than 100 patients over the age of 14 who had experienced an upper respiratory infection during a prior eight week period were evaluated, and stress levels and scores were calculated for each individual as well as the family unit, using several standard techniques. Clinical status, type and degree of medical care, and utilization of medical services were also reviewed to determine whether there might be some relationship between stress levels and how both patients and physicians behaved. This revealed that when patients had high stress levels or low family support, physicians tended to prescribe more medications, order more laboratory tests, and schedule more returned visits. With respect to the patients, there was also an increased tendency to seek additional medical care, make numerous extra phone calls, and the perception that their illness had persisted for a much longer period of time. The researchers concluded that greater personal stress levels and/or lack of family support significantly increased the utilization of health services and the perception of illness, and that physicians also tended to respond to such patients by offering more medical services, perhaps in an attempt to appease them or allay their fears.

Family Medicine 24:5, 1992

Exhaustion, Job Stress, and Heart Attacks

Dutch researchers have previously described a syndrome of unusual fatigue and exhaustion in the week or two preceding a heart attack as reported at our 1990 Congress. A recent report from The Netherlands provides additional information in a study of 133 working men who experienced an initial acute myocardial infarction. The results confirmed higher reported levels of exhaustion in this group than age and job matched controls, regardless of smoking habits or prevalence of other risk factors. Severe exhaustion represented a significant risk indicator in and of itself for an initial heart attack, and there was also a positive correlation with the degree of perceived job stress. The latter was manifested primarily by an increased number and greater severity of personal conflicts during work activities, the perception of having too much responsibility, and concerns about job security and advancement. It was felt that such psychosocial stresses were major contributors to the feeling of exhaustion that preceded the initial heart attack.

Journal of Psychosomatic Research, Vol. 36, p. 777, 1992

Stress and Platelet Clumping

Platelets in the blood are rich sources of clotting factors, and platelet aggregation or clumping is believed to play a crucial role in the development of heart attacks and strokes because they lead to clot formation. Platelet clotting is facilitated by stress related hormones like adrenaline, and is thought to be a major reason why heart attacks and strokes tend to occur just after awakening in the morning, when such activities are increased. To determine whether or not patients with heart attacks had exaggerated platelet responses to stress, 10 postinfarction patients and an equal number of age matched controls were evaluated for platelet function and determination of adrenaline levels, before being subjected to mental stress, at the end of the procedure, and 30 minutes after recovery. Mental stress was found to increase heart rate, blood pressure, and serum adrenaline and platelet clumping as well as various blood clotting factors. All of these returned to normal at the end of the 30 minute recovery period. The degree of elevation of cardiovascular responses and adrenaline levels was similar in both groups, but the heart attack patients group had a greater rise in platelet activation due to emotional stress.

Patients at risk for strokes and heart attacks due to clot formation are often treated prophylactically with Persantine, a drug which appears to reduce platelet clumping. In this report, when the experiment was repeated while taking Persantine, there was no difference in blood pressure, pulse or adrenaline increases, but there was a reduction in stress related platelet clumping, supporting the use of this drug in such situations, and suggesting that this is a direct effect, rather than one mediated by influences on adrenaline production.

Haemostasis 22:138, 1992

Stress, Illness, and Coping in Antarctica

The concept of adaptation has always been of interest to medical anthropologists, both from the standpoint of evolutionary changes as well as coping with new societal stresses. Social isolation and loneliness are increasingly being recognized as major psychosocial stresses, but in most instances, such problems are due to factors related to the individual, rather than lack of availability of social support. One of the few remaining areas of the world where the latter prevails, is Antarctica. In addition to the stress of prolonged isolation and confinement, there is additional environmental stress as a result of constant exposure to extremely harsh weather conditions. Men and women who winter-over at scientific research stations often exhibit a variety of psychophysiological symptoms in response to such stressors. However, rather than being harmful, the Antarctic experience appears to provide long term health benefits and improved coping skills. The psychophysiologic symptoms experienced seem to represent a manifestation of appropriate and healthy coping processes, rather than reflecting an unhealthy or maladaptive response to environmental stress. In this context, coping is viewed as a negotiation process which leads to a compromise between the needs of the individual and the needs of the group, since this would be the most important determinant for survival. The socio-cultural atmosphere of group activities in Antarctica research stations appears to reflect this, and for the individual, this encounter seems to foster the acquisition of new strategies and skills that provide improved coping with subsequent stressful experiences.

Soc Sci Med, 35:651, 1992

"In solitude the lonely man is eaten up by himself, among crowds by the many.

Nietzsche

Stress, Behavior, and Sudden Death

Research over the past decade has significantly increased our appreciation of possible links between stressful emotions such as anger and fear, and heart attacks, as well as sudden death due to ventricular fibrillation. Daily stresses can produce significant myocardial ischemia and severe irregularities of heart rhythm of which the patient is completely unaware, and considerable progress has been made in developing behavioral stress tests to study these important and common problems. More recently, certain sleep states have been found to be associated with both myocardial ischemia and cardiac arrhythmias. Such problems are particularly apt to occur during the rapid eye movement (REM) phase of sleep, both in humans and animals. REM sleep is associated with dreaming, and is most frequent in the period immediately before waking up spontaneously. It is believed that concomitant increased adrenaline secretion and sympathetic drive reduces cardiac blood flow and increases the likelihood of abnormal heart rhythms, which may explain why heart attacks are more frequent in the hours just after arising. Further knowledge and understanding of the mechanisms of action involved could point the way towards developing effective prophylactic interventions in individuals at high risk for sudden cardiac death, such as the nightly administration of beta blockers.

PACE 15:1387, 1992

"Man dies when he wants, as he wants, of what he chooses."

Jean Anovilh

World War II Stress and Heart Attacks

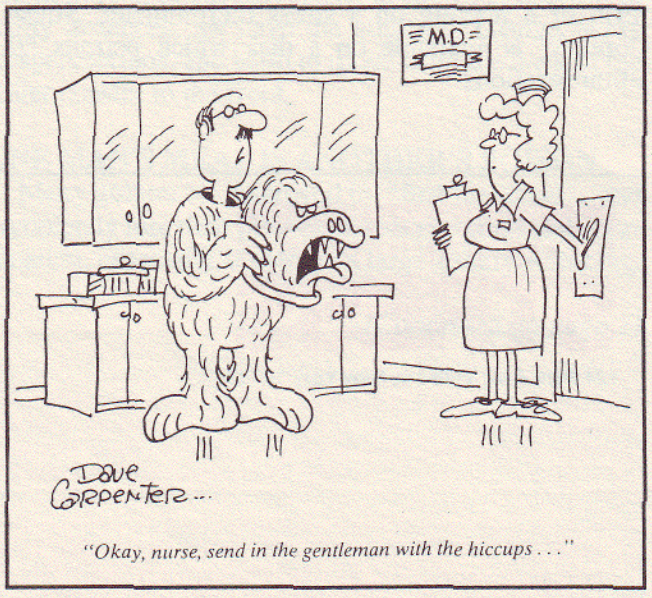
A Dutch study recently investigated the incidence of Post Traumatic Stress Disorder in World War II veterans who had experienced extraordinary trauma as a result of intensive involvement in the Resistance Movement. One hundred forty seven male Dutch W.W. II Resistance veterans were compared to age matched control veterans without this type of service experience, and another group of non veteran routine surgical patients. Of these groups, the World War II Resistance veterans scored highest with respect to cardiovascular risk factors such as angina, Type A Behavior, life change event stressors, and feelings of severe fatigue and exhaustion, but not smoking. Fifty six percent of these veterans were currently suffering from symptoms of Post Traumatic Stress Disorder and had a much higher incidence of Type A Behavior and severe exhaustion than the other two groups. The researchers suggested that early sensitization to environmental stressors may be associated with a higher incidence of Post Traumatic Stress Disorder and excess risk for heart attacks, and this appeared to be especially true for those individuals who experience unusual wartime trauma.

Psychotherapy Psychosom 57:164, 1992

Job Stress in Health Care Providers

The purpose of this Finnish study was to develop a standardized survey for measuring job stress and well being in the hospital setting. Approximately 350 workers from medical and gynecology and obstetric and first aid units in a middle sized Helsinki hospital were interviewed, both with respect to sources of stress and satisfaction related aspects of their work activities. The major job stress-related problems included: not enough time to get the job done correctly, difficulties with interpersonal relationships, too much responsibility, safety and health risks, lack of appreciation or positive feedback for work well done, troublesome patients, a lack of adequate equipment and resources on various occasions, as well as problems related to proper or pleasant collaboration with other health professionals. On the positive side, job satisfaction was rewarding, although this appeared to depend largely on personal perceptions of mental and physical work loads.

Hoitotiede, Vol. 4, 1/15/92



"Okay, nurse, send in the gentleman with the hiccups . . ."

Book Reviews • Meetings and Items of Interest

Book Reviews

STRESS COMM™, Ombudsman Press, Inc., 470 W. Highland Avenue, Sierra Madre, California 91024, Telephone 818-355-1325.

Stress Comm™ is a computerized assessment quiz consisting of 60 questions about common feelings and behaviors that can be used to assess stress levels. Although administered and scored on a computer, the test is quite easy to administer, and no computer knowledge or skills are required. Specific questions appear on the screen that can be answered simply and readily, following which the total stress scale and certain subscales are immediately calculated and the results displayed. The entire procedure usually takes less than 15 minutes in our experience. A complete analysis with recommendations can also be printed in a short and long version that shows how the subject rates compared to peers. There are also subscale scores for control/responsibility, competition, task orientation, inflexibility for change, physical symptomatology, and time management. The program has good test re-test reliability and has been administered to various demographic groups ranging from computer programmers and hospital managers to medical personnel, university students and police trainees. A printed report can be used as an aid to counselling, and the file may also be loaded into word processing programs or data bases for further customizing or gathering research information. The company also offers a self scoring paper and pencil stress quiz which can be completed in a short period of time, with the resultant stress level displayed in the form of a reading on a stress thermometer. Stress Comm™ is available on a disk which permits 50 administrations.

Meetings and Items of Interest

March 4-6 American Psychosomatic Society - 1993 Annual Meeting, Omni Hotel at Charleston Place, Charleston, South Carolina. Info: 1-800-THE-OMNI

March 10-13 The Society of Behavioral Medicine - Fourteenth Annual Scientific Sessions, Sheraton Palace, San Francisco. Contact Kenneth A. Perkins, Ph.D. (301) 251-2790

March 19-22, 1994 American College of Preventive Medicine; Association of Teachers of Preventive Medicine - Prevention 94: Clinical Preventive Medicine, Public Health, Occupational Medicine, Atlanta, GA (202) 789-0006

March 25-30 The Association for Applied Psychophysiology and Biofeedback - "New Visions - New Realities" Biltmore Hotel, Los Angeles, CA. Submissions must be postmarked by Sept. 16, 1992. Contact: Connie Maslow, Director of Meetings (303) 422-8436

March 22-25 ISC Division of Wellness - 12th Annual Role of Exercise and Nutrition in Preventive Medicine, Beaver Run Conference Center, Brekenridge, CO (813) 686-8934

April 2-4 Harvard Medical School, Massachusetts General Hospital, Department of Psychiatry - Mood Disorders: Effective Treatments, Copley Plaza Hotel, Boston (617) 432-1525

April 24-25 University of California, San Diego School of Medicine, Office of CME - The Cutting Edge Conference 1993: The Treatment of Severe Personality Disorders, Doubletree Hotel, San Diego, CA (619) 565-9921

April 27-May 28 New Science: New Physics and the Systems View of Life: the Holistic and Ecological Nature of the Emerging Paradigm, Devon, United Kingdom, Fritjog Capra, Schumacher College, The Old Postern, Dartington, Totnes, Devon TQ9 6EA, UNITED KINGDOM

May 14-19 University of California, San Diego School of Medicine, Office of CME - The Power of the Art: Introduction to Medical Hypnosis, Colonial Inn, Del Mar, CA (619) 259-6790

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